



C-51 Reservoir Update

**Water Resources Advisory Committee
November 3, 2016**

Lennart J. Lindahl, P.E., Assistant Executive Director

C-51 Reservoir – Palm Beach Aggregates and Local Sponsors



➤ Captures and stores excess surface water from the C-51 West Basin

➤ Proposes delivery of water as Alternative Water Supply

C-51 Reservoir Alternative Water Supply

- Water conveyed through a series of SFWMD, Lake Worth Drainage District, and other integrated canal systems
- No structural improvements necessary to deliver Phase 1 water
- Recharges local wellfields



Project History

- Originally contemplated as part of CERP
- 2006 - Coordination of seven Broward and Palm Beach water utilities and counties
- 2007-2008 - Partners cost-shared in initial preliminary design and cost-benefit analyses with policy and regulatory issues coordinated with SFWMD
- 2009 – 2013 – Regulatory, environmental, geotechnical, conveyance, governance, and financial considerations culminated in the Preliminary Design and Cost Estimate Report

C-51 RESERVOIR – PRELIMINARY DESIGN AND COST ESTIMATE – FINAL REPORT



Prepared By:
Lake Worth Drainage District
Palm Beach County
Broward County
South Florida Water Management District
February 2013

SFWMD/Palm Beach Aggregates 2013 Project MOU Agreement

PBA Responsibilities

- Design, develop, secure permits, financing and construction of Phase I of the C-51 Reservoir
- Solicit and secure sufficient capacity allocation agreements to support construction of Phase I
- Develop and enter into Conveyance System Agreements as necessary with 298 Districts
- Transfer ownership to a not-for-profit corporation upon completion

SFWMD Responsibilities

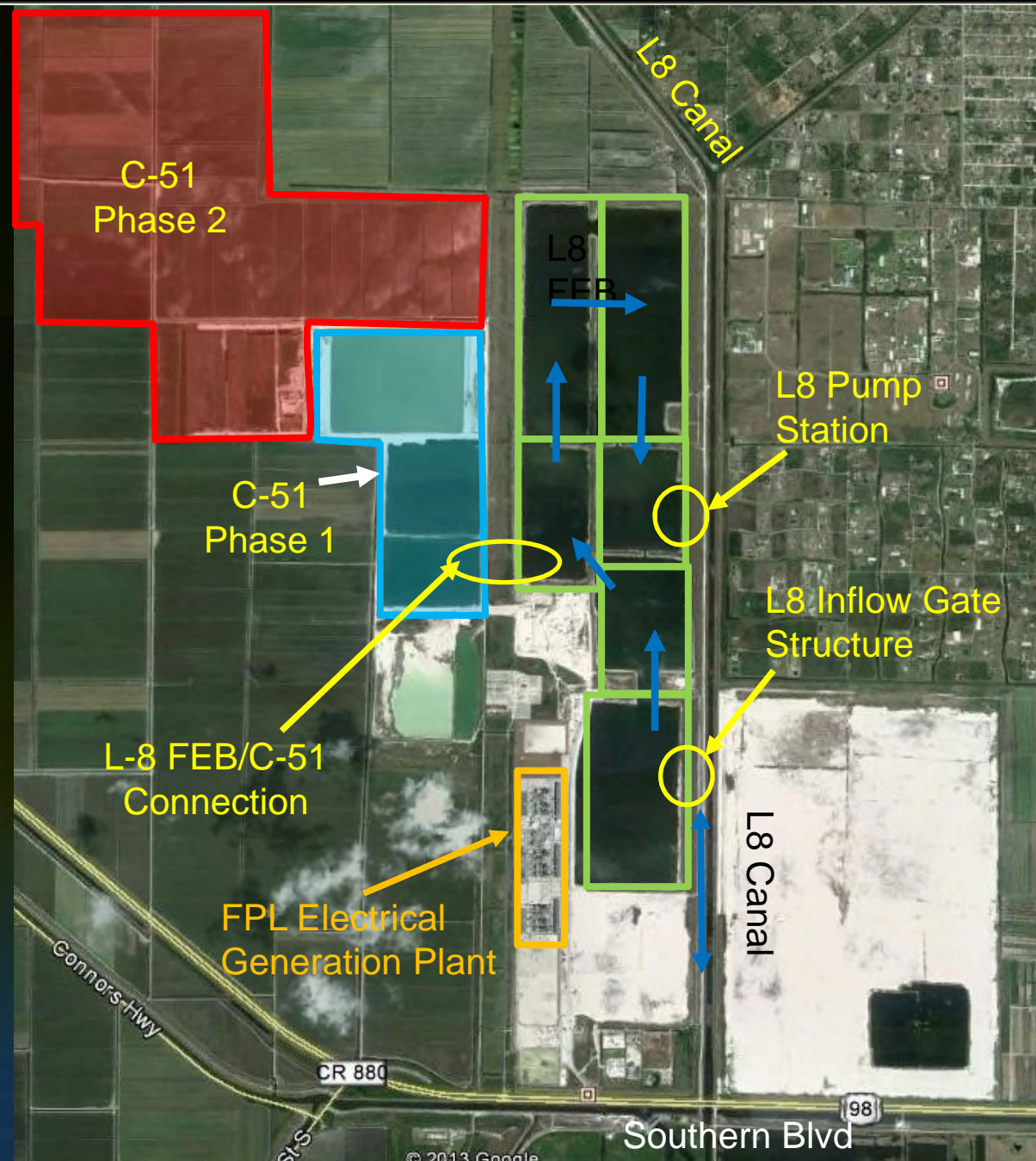
- Provide evaluation of permits, plans, operational analysis and evaluation of the connections between Phase I and the Conveyance Systems to move water into and out of the Reservoir
- Develop Operations and Maintenance Agreement
- Operation and Maintenance of Reservoir after construction is completed with reimbursement cost

Project History

2013 – Present

Governance and Finance Work Group created via resolution and adopted by participants

| | |
|---|-------------------------------|
| Broward County | Palm Beach County |
| Broward WRTF | Palm Beach WRTF |
| South Broward Drainage Dist. | Lake Worth Drainage District |
| Hallandale Beach | Boca Raton/Lantana |
| Coconut Creek | Palm Beach Gardens/Juno Beach |
| Town of Davie/Cooper City | Jupiter Inlet/Riviera Beach |
| Fort Lauderdale | Royal Palm Beach/Wellington |
| South Florida Water Management District | |



Phase 1

- 14,000 acre-feet of storage
- Approximately 35 million gallons per day (mgd) for water supply
- Majority of excavation complete
- Costs \$161 million

Phase 2

- 46,000 acre-feet storage
- Approximately 120 mgd for water supply
- Seven years to construct
- Cost: \$286 million (excluding excavation)

C-51 Reservoir Progress Update

- Environmental resource and consumptive use permits have been issued to PBA by Florida Department of Environmental Protection
- Under evaluation as a project area component of the U.S. Army Corps of Engineer's Loxahatchee River Watershed Restoration Project



C-51 Reservoir Progress Update

- PBA has entered into conveyance system agreement with Lake Worth Drainage District
- PBA is seeking capacity allocation agreements for Phase I



C-51 Reservoir Site Visit

Proposed Operations and Maintenance Agreement

- SFWMD agrees to operate and maintain the project
- C-51 Reservoir is not owned by SFWMD nor is it considered part of the “Regional System”
- Annual payment for services is made in advance in addition to funding a one-year reserve
- Estimated annual cost for the project is \$1.1 million



C-51 Reservoir Construction

C-51 Participant Costs

➤ Cost Breakdown

- Capital \$4,600,000 per mgd – one time
- O&M \$36,000 per mgd – annually

➤ Alternative Water Supply Cost Comparison

- 30 years at 10 mgd (includes capital costs, debt service, O&M, and treatment)
 - C-51 Reservoir Phase 1 \$214 million
 - New Floridan Reverse Osmosis \$398 million
 - Wastewater Reuse via Aquifer Recharge \$524 million

C-51 Funding Challenges

➤ Option A: Water Utilities will fund 100 percent of storage capacity based on allocations

■ Current letters of intent

- Broward County 6 mgd
- Sunrise 5 -10 mgd
- Lauderdale 2 mgd
- Dania Beach 2 mgd
- Total: 14-19 mgd
(\$64.4 - \$87.4 million)



C-51 Funding Challenges

➤ Option A: Water Utilities will fund 100 percent of storage capacity based on allocations

- Additional participants needed:
 - 16 mgd at \$4.6 million capital cost per mgd = \$73.6 million
 - 21 mgd at \$4.6 million capital cost per mgd = \$96.6 million



**C-51 Reservoir to L-8 FEB
Connection Location**

C-51 Funding Challenges

➤ Option B: Water Utility Funding of Storage Capacity Plus a Portion of Alternative Water Supply Funding

- Initial Utilities Fund \$64.4 - \$87.4 million for 14-19 mgd
- Continue Work on Additional Participants
- Funding balance of \$73.6 - \$96.6 million from *a portion of future “alternative water supply” funds allocated by the Legislature, over a 10 year time period*



C-51 Reservoir Construction

C-51 Funding Challenges

➤ Option C: Water Utility Funding of Storage Capacity Plus District Storage Needs

- Initial Utilities Fund
\$64.4 - \$87.4 million
for 14-19 mgd
- District funds balance of \$73.6 - \$96.6 million for potential Storage Needs



C-51 Reservoir construction

Potential Pilot Project Designation

- New program per Senate Bill 552 – the “Water Bill”
- Project Requirements
 - Located within a restricted allocation area as defined in Statute
 - Provides water supply and environmental benefits
 - Reducing damaging discharges to tide; or
 - Part of Minimum Flow Level Prevention and Recovery Strategies
 - Existing Alternative Water Supply Project
 - Identified in Water Supply Plan
 - May provide up to 50 percent funding assistance
 - Pilot project designation made no later than July 1, 2017



L-8 FEB Site in western Palm Beach County

Potential Pilot Project Designation

➤ October Governing Board Direction

- Initiate pilot program consistent with Statute
- Staff directed to identify projects that qualify based on Statutes
- Report back on selection criteria and potential projects

➤ Staff solicitation to stakeholders

- Distributed to stakeholders District-wide on October 19th
- Requested submittal of projects that may qualify as a pilot
 - Project summary
 - Total cost
 - Funding sought
 - Water made available
 - Schedule
 - Outcome and benefits
 - Suggestions on evaluation criteria
- Reply by November 4



Discussion